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A
T R E A T I S E
U P O N
G O U T,
IN WHICH
THE PRIMITIVE CAUSE OF THAT DISEASE
AND LIKEWISE OF
G R A V E I.
IS CLEARLY ASCERTAINED;
AND
AN EASY METHOD RECOMMENDED,
BY WHICH
BOTH MAY BE WITH CERTAINTY PREVENTED,
OR RADICALLY CURED.

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P R E F A C E.

TH E following Treatise must stand or fall by its own merit. It goes forth into the world, without deriving either credit or reproach from the name of him that gave it birth. The Parent has not even availed himself of the recommendation which a dedication to some person

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son of consequence would have afforded.

OF the greatest number of Diseases, the nature and origin are pretty well ascertained: but the most eminent Physicians have acknowledged themselves unacquainted with the CAUSE OF GOUT. For this reason it has emphatically been termed, the OPPROBRIUM MEDICORUM.

NOTWITHSTANDING the frequency of urinary concretions, very little has been known concerning the circumstances

stances which produce them, or the means by which they are to be prevented. As a proof of this assertion, witness the very painful and dangerous operations which are daily put in practice for the extraction of Stones.

In the following pages, an attempt is made to trace these maladies, to the sources from which they spring; and a method is laid down for the cure and prevention of both. The novelty and importance of the doctrine demand attention : a confirmation

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tion of it, if just, must be productive of the greatest good to mankind ; on the other hand, if founded upon error, the sooner it is confuted the better. The Author has only to request, that it may be well weighed, and impartially considered, before judgment is pronounced. The principles that are laid down, must be established or contradicted by experience only ; and the whole must be taken into the scale before any opinion is formed.

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T R E A T I S E
U P O N
G O U T, &c.

THE disease, which passes by the name of GOUT, has engaged the attention of Medical Men, in every age : the pain and danger with which it is attended, and the numbers that are affected by it, render it a malady of the most serious importance.

LITTLE can be done towards the cure, and less towards the prevention, of any disease, till the cause from which it originates is perfectly ascertained : a variety of opinions have been entertained respecting the nature of Gout ; but from an ignorance of the particular alteration in the system, which gives occasion to its production, no effectual means of prevention have as yet been suggested. Experience has taught in what manner its violence may be mitigated, and while there is a doubt concerning the cause, mitigation is all that is to be expected. Amidst modern discoveries, the improvements in medicine are not the least considerable ; yet it is remarkable, that no material advantage has been gained in the treatment of this disease.

AN investigation of the various theories, that have been formed respecting Gout, would be tedious and unentertaining. Many of them were plausible, while others have not had even ingenuity to recommend them. The rich and the luxurious are the persons most frequently afflicted with it: their eagerness to be relieved, has exposed them to become the dupes of designing and illiterate quacks, who make a secret of their nostrums, with a view to conceal their ignorance. Too often has the constitution fallen a prey to the blunders of these pretenders. It is amazing that men of understanding should frequently commit the management of their dearest concerns to the blind guidance of impostors, without character and education, or any claim to physical know-

ledge, unless they have acquired it by instinct.

AMIDST the vast number of hypotheses that have been invented, there are only two which require to be noticed. The first is Gouty Matter, an expression in every person's mouth : the other is Atony, and is deserving of attention, from having been furnished by one of the greatest physicians and most celebrated professors that the world has produced.

MANY have been of opinion, that the disease depended upon a peculiar species of matter which excited the affection called Gout in the parts where it happened to be deposited. They considered the inflammation as a process of nature for expelling

pelling the matter ; and they accounted for the sudden changes that were frequently observed to take place from one part of the body to another, by supposing that the matter which had been deposited was again taken into the vessels and carried to another part. But the existence of such matter has never been proved ; and, instead of explaining the various phenomena of Gout, it involves them in greater obscurity. The diseases which are produced by an infectious matter circulating in the vessels at large, are never confined to one part of the body. It is difficult to conceive how the whole matter should be deposited in a particular part ; and it is impossible to form an idea of the sudden translation of that matter to another part. It would be losing time to enter into a

refutation of the several arguments that have been urged in favour of this doctrine: they are in general ill supported, and, instead of clearing up any thing, they tend to perplex and increase the difficulty.

THE theory of Atony is liable to invincible objections. The author of it has acknowledged, that men of robust constitutions are most subject to gouty affections. Why the most vigorous habits should at a certain period become liable to a want of tone in the extremities, it is not easy to comprehend: but supposing such a thing to happen, how, in consequence of this weakness, an inflammation of a nature so peculiar should arise; or in what manner that inflammation should have

have the effect of removing the weakness which produced it, and of increasing the tone of the system, are paradoxes not readily solved. Inflammation, and every other unnatural increase of action, have of themselves a tendency to weaken : by what means they may become the instruments of giving strength, shall be hereafter considered.

GOUT is an inflammatory affection, attended with peculiar symptoms. All inflammations have in them something analogous, such as swelling, redness, and an increased action of the vessels : but in many respects there is great variety. They are different according to the causes which produce them, or the habit of body in which they arise. Different stimuli

will excite inflammations of a different kind in the same body, and the same stimulus will frequently give occasion to inflammations of a very different nature in two different bodies. Gout is a very peculiar inflammation, of which every person does not appear to be susceptible : but, on the other hand, there are certain constitutions in which the disposition to it is so strong, that it will generally take place when any stimulus whatever has been applied. In considering this disease, the most necessary circumstance to be ascertained, is the particular alteration from the natural state of the body, which gives a susceptibility of an action so unnatural. Upon a knowledge of that, the means of prevention will entirely depend.

IN investigating this point, it will be of material importance to pay attention to what other diseases are most liable to occur in a gouty habit.

MANY respectable authors have taken notice, that Gout is frequently combined with Gravel. Gouty and nephritic complaints not unusually attend upon one another; and it has also been remarked, that the female children of gouty parents are peculiarly subject to gravel. These observations, which are confirmed by the experience of ages, give a strong presumption that the constitution which gives occasion to the one disease, is the same as that in which the other occurs. This presumption is strengthened by a remark which has been made by Dr. Cul-

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len, and others, that the medicines usually recommended in Gravel, have had the effect of preventing the paroxysms of Gout.

THE alteration from the natural state, which gives occasion to the formation of Gravel, is a preternatural quantity of calcarious earth in the fluids. When any stagnation takes place, as in the pelvis of the kidney or in the bladder, this earth is liable to be deposited, and the particles frequently join together so as to form masses, which are termed Gravel or Stones, according to their size. In habits severely afflicted with Gout, besides the appearance of Gravel in the urinary passages, calcarious concretions are frequently observed in the joints, in various glands,

glands, and in other parts of the body. These are a farther inducement to think that the habit is the same in both diseases, and that in Gout as well as in Gravel there is a redundancy of calcarious earth in the circulation.

THERE are many diseases by which the body appears at times incapable of being affected, or to which the disposition is so weak that it cannot be roused into action. A variety of circumstances have a tendency to give or to increase a disposition to certain diseases, so that when any cause is applied they shall readily take place.

SCROPHULA is a morbid affection to which there is not the least disposition in the bodies of many; but by a change of
climate,

climate, and other occurrences, these very persons shall become so strongly susceptible of it, that the slightest exciting cause will produce it. Heat is not the immediate cause of a dysentery ; but it gives to the body a disposition to go readily into that disease whenever an occasional cause, which is frequently the application of cold, shall occur. These circumstances which produce or increase a susceptibility of particular diseases, have been called their predisponent causes : the circumstances which tend immediately to produce the diseases themselves in habits already predisposed, have been called the occasional or exciting causes.

CALCARIOUS earth in the fluids appears to be the predisponent cause of Gout.

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In the natural state of the body there does not exist the least disposition to this disease; but when that state is altered by the introduction of calcarious earth, a susceptibility of a new species of action is given. Several reasons have already been mentioned, tending to excite a suspicion that it never takes place, excepting when, from the appearance of concretions in different parts, it is evident that an unusual quantity of such earth is mixed with the fluids: if the circumstances which are known to give rise to the góuty disposition, shall be found to be these, which in every instance increase the quantity of that earth in the circulation, a confirmation of this doctrine will be secured.

It may be objected, that after having combated the theory of gouty matter, we are setting up another substance which can only be considered as a species of matter, and on that account liable to all the objections that were urged against the other opinion. There is, however, a substantial difference. The earth in the habit is not regarded as the occasional cause immediately exciting the disease, by being deposited in particular parts; neither is the inflammation to be looked upon as an effort of nature for expelling the earth. The existence of other matter was founded upon conjecture merely, and the supposition of it was attended with infinite difficulty. But with respect to calcarious earth, it is undeniable that the disposition to Gout is very often attended with

with these affections, which denote an extraordinary quantity of it in the fluids of the body ; and the idea that it is the occasion of the disposition, will be confirmed by every circumstance attending the production of either. Instead of increasing the perplexity under which the phenomena of Gout have hitherto been enveloped, it will clear up the obscurity, and prove a means of accounting for incidents that have never been explained.

THE predisponent and occasional causes of a disease, are often very different in their nature. Heat is the predisponent cause of a dysentery ; cold is most frequently the exciting cause. Calcareous earth is not the occasional, but the pre-
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disponent cause of Gout ; it produces in the body a susceptibility of an action very different from any that can take place in the natural state.

It may be asked, has the calcarious earth in a gouty habit been made sensible to experiment ; has it been separated from the blood drawn from a vein ?

THE quantity compared to the mass of the circulating fluids, is at all times too inconsiderable to be so ascertained. It has no colour by which it can be distinguished, nor does it in any manner alter the appearance of the whole ; but it becomes sensible, from the concretions that it forms in different parts. Will it be denied, that there is an unusual quantity

quantity of this substance in the vessels of those people who are afflicted with gravel: yet it is not to be discovered in their blood.

THE consent between Gout and Gravel, with the frequency of their occurring together, at first led us to imagine that they originated from the same cause. The remedies, which are of service in the one, proving beneficial in the other, gave strength to the suspicion. Farther investigation convinced us, that they depend upon the same circumstance, are capable of being prevented by the same means, and of being cured by the same remedies.

It may be urged as an objection to this opinion, that Gravel frequently occurs without any symptom of Gout, and that Gout is not constantly attended with Gravel : in short, that the two diseases sometimes appear separate, which should never happen if they both proceeded from the same cause.

THIS circumstance will be readily accounted for by the difference between them. Gravel is a mechanical effect of the calcareous earth upon the urinary passages : Gout is an alteration of the action of the body ; or, in other words, an affection of the living principle. A substance acting mechanically is certain in its effects. When calcareous earth is contained in the urine, while it stagnates in

in the pelvis of the kidney and in the bladder, the very minute particles will generally attract one another, and get together so as to form larger ones, which in passing must irritate.

IF Gout was a disease mechanically produced by the particles of the earth acting upon and irritating the parts to which it is applied, it should always take place whenever such earth is contained in the blood vessels. But the inflammation is not in any manner occasioned by the deposition or secretion of the earth in the parts which are commonly affected. The concretions, that are found upon the joints after frequent and long continued fits, are to be considered merely as an effect, and not as the cause of the inflammation,

mation, which they never precede. That which constitutes Gout, is an alteration of the actions of the body, and not a mechanical irritation. The influence of powers, acting upon the principle of life, is by no means so certain and determined as when their operation is mechanical. The effects, which they produce on different constitutions, or on the same constitution at different periods, are extremely variable. Many bodies are endowed with a power of counteracting, or resisting, to a great degree, every thing that has a tendency to excite a disposition to an unnatural mode of action. The same degree of heat does not produce a disposition to dysentery in every constitution, nor are all equally liable to be affected with agues in a marshy country. A great proportion

portion of those who are subject to nephritic complaints, have at times been sensible of gouty symptoms: but in many constitutions, and in the one sex more than in the other, there may be a power of resisting the tendency in calcareous earth to produce a disposition to Gout; a readiness to take on the disposition to particular diseases, when the cause of that disposition is applied, is communicated from father to son, and will account in one way for Gout being hereditary.

It has been remarked, that men of robust constitutions, and women of a masculine habit, are most liable to be affected with this disease: upon them the calcareous earth appears to have the greatest influence. The age too makes a differ-

ence. At certain periods of life the body becomes more easily susceptible of peculiar dispositions. In short, a variety of circumstances may co-operate with the cause of the disposition, so as to render it more or less certain in its effect : therefore it is not surprising that Gravel should very often appear without any symptom of Gout. There are, perhaps, particular ages and constitutions in which a susceptibility of Gout cannot be produced ; but whenever it does take place, calcareous earth in the fluids is the occasion of it.

GOUT is seldom unattended by Gravel, because, as has been already observed, the latter affection, being a mechanical effect, is more certain : there are, however, circumstances which may prevent any nephritic

phritic symptoms from being caused by calcareous earth, even when there is a preternatural quantity of it in the blood vessels. The secretion by the kidneys has always been considered as analogous to filtration. Great alterations take place in the appearance of the urine, in consequence of the contraction or relaxation of the vessels through which it passes. In the kidneys of some people, the secretory vessels may be too small to give passage to the calcareous earth; and that may be one reason why Gravel is not always an attendant upon Gout.

OR, the particles of calcareous earth may sometimes be contained in the urine, without uniting so as to form gravel or stones, and in that case no uneasiness will

arise from it. Particular states of the urine may prevent it from coming together into such masses. In general it seems to require a nucleus to form upon. A coagulum of blood, or a little mucus is most frequently the nucleus; and where no nucleus can be found, perhaps no union will take place.

WHOEVER considers these circumstances with attention, will not be surprised, that the one disease should in many instances occur without the other, notwithstanding that both arise from the same cause; neither can it be thought wonderful, if, in some persons, the fluids should be loaded with calcareous earth, without either Gout or Gravel being produced.

HAVING mentioned the concretions which are formed upon the joints after severe paroxysms of Gout, it becomes necessary to say something more concerning them.

It is found, that calcareous earth in the fluids will circulate a long time without concreting any where, provided it only comes in contact with living matter; but that if dead matter is applied, it will immediately be incrusted over. A coagulum of blood in the bladder has often laid the foundation for a stone, when without it none would have been formed. An inflammation that is violent, or of long duration, is always attended with some degree of extravasation. In a body of which the fluids are loaded with calcareous earth,
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there will naturally be a depofition of that earth upon the extravafated or dead matter, if it remains long without being abforbed. This procefs may be compared to the putrefaction of trees and other fubftances; that which was at firft blood, or a part of the blood, fhall, after a length of time, affume the appearance of a concretion purely calcareous. In this manner thefe chalk ftones are formed; they are not the occafion, but the confequence of the inflammation: however, they confirm the idea, that in a gouty habit there is always a redundancy of calcareous earth in the blood veffels;

SOME, perhaps, will contend, that although Gout occurs only in thofe perfons whofe fluids are known to abound with cal-

calcareous earth, nevertheless, the disposition is not to be considered as the consequence of that earth, but as happening accidentally with it, or as produced by the same circumstance.

IF it is granted that the disease never takes place but in a body impregnated with calcareous earth, we care not in what degree of relationship they are placed with respect to one another. We have given it as our opinion, that the susceptibility of Gout is produced by the earth, but if it is allowed, that they are both to be prevented by the same means, and removed by the same remedies, it is of no consequence in what light they are otherwise considered. We are less ambitious of the reputation of having formed an ingenious theory,

theory, or of having stated a new doctrine, than of contributing to the good of mankind, by enabling them to conquer a disease most painful in its symptoms, and fatal in its consequences.

It may appear improbable, that a proportion, small compared to the bulk of the fluids, of a substance so inoffensive as calcareous earth, should have the power of producing a disposition to an affection of so peculiar a nature.

THE manner in which various substances operate upon the principle of life, is perfectly incomprehensible: their effects, when introduced into the body, cannot be learnt from their sensible qualities, chemical or mechanical. Of this, the
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physiologists, who have been at the trouble of making injections into the vessels of living animals, have had sufficient reason to be convinced ; the consequences produced by different substances were not by any means correspondent to what might have been expected. We pretend not to say to what particular quality of the earth the effect is to be attributed : the sum of our doctrine is this ; that a susceptibility of Gout is a consequence of an unusual quantity of calcareous earth in the circulation ; that the earth does not in every age, constitution, and climate, produce the susceptibility, but that the susceptibility never occurs without the earth.

THE effects of this substance are not more extraordinary than those of lead and
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its preparations. The peculiar quality in that metal, of causing paralysis, could not have been foreseen. The manner in which it operates, so as to be attended with a consequence so unexpected, has never been explained. Physicians, without attempting to account for its action, have rested satisfied with knowing that such is its tendency in many cases.

It may be observed, that although this property in lead is fully ascertained, its powers are not equal upon every constitution; for, while many very readily give way to its influence, there are others which appear to resist it entirely, or in a great degree. This fact will of itself be a sufficient answer to the objections that may be urged against the probability of cal-

calcareous earth *ever* proving the cause of a disposition to Gout, because it does not *always* produce it.

IT is natural for an author to consider with himself in what manner his book will be received by the world. It is probable, that the present Treatise will attract, in a considerable degree, the attention of the faculty, and of the afflicted. From people of the latter distinction it will meet with much kindness: they will pay court to it as to their dearest friend and their best adviser. By the faculty it will be variously treated: the more enlightened, whose minds are above the meanness of envy and jealousy, will judge of it by its merits, and decide upon it with impartiality: but its reception from others

others will be of a very different nature. At first they will resist the system in toto, *vi et armis*: every principle that is laid down will be combated as futile or absurd; the conclusions that are drawn will be considered as preposterous; and the evil tendency of the whole will be clearly pointed out. In the end, however, prejudice must give way to conviction, and error must yield to the powerful energy of truth. When the facts that are stated can no longer be denied, the mode of attack will be changed. Some wiseacres, *with that accurate discrimination between causes and effects which has distinguished our medical authors*, will contend, that calcareous earth in the fluids, is not the cause but the consequence of Gout. Others will seize upon different ground: they

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will prove, to a demonstration, by the means of mangled quotations and half sentences, that the doctrine is not new, but that it has been the prevailing opinion since the age of Hippocrates, that the disposition to this disease proceeded from such earth in the fluids. In the same manner it has been proved, that the use of the absorbents was well known, long before the period of Dr. Hunter. The littleness of such creatures is sufficiently punished by the general contempt which it can never escape.

THY pardon for this digression, indulgent reader; it stole upon us in a visionary moment, when the mind was endeavouring to dive into futurity, with a view to discover what time only can unfold.

THE terms of an unusual and a preternatural quantity of calcareous earth, with others of similar import, have frequently been employed in this treatise. They are used from a suspicion, that there are few persons with whose fluids that substance is not in some degree mingled. There is reason to think, that a little of it is generally contained in the blood-vessels; selenitic salts too are found in the blood. Whether these and the calcareous earth, are necessary to the animal œconomy, or only taken in by accident, is a matter of some doubt.

MANY have been of opinion; that calcareous earth must of necessity be contained in the fluids, that it may be employed towards the formation and support

of the bones ; but this is a doctrine to which we cannot subscribe. The substances which are wanted for particular purposes in certain parts of the body, are not contained in the blood ; the system has a power of forming them in the places where they are respectively required. The bile is not found in the blood-vessels ; the oil of the cellular membrane is not found in the blood-vessels ; and it is extremely probable, that the earth of the bones is not mixed with the blood ; but that it is produced by the vessels of these parts where its presence is necessary.

THE matter of the body is perpetually undergoing a renovation : the old particles are absorbed, and new ones deposited ; the earth of the bones is continually

changing as well as the softer parts. If that which is to be removed is taken up in the form of earth, without alteration, calcareous matter will in consequence be mixed with the blood, and the quantity will be in proportion to the quickness of the change; but this is only conjecture. It is more probable that the earth undergoes some decomposition in the moment of absorption, and that its nature is altered before it gets into the circulation.

WE are inclined to believe, that calcareous earth and its salts are unnecessary in the animal œconomy: it mingles in a greater or less degree with the fluids of most bodies; but it is introduced by accident. There are few people who are not in some degree exposed to the circumstances

stances which shall presently be mentioned, as the means of its getting into the circulation. A certain proportion of it in the vessels seems to be productive of no ill effect. What the exact proportion is, between that which can be endured without offence, and that which becomes the cause of disease, it is impossible to determine. It is probably very different in different habits. This, however, is certain, that when an unusual quantity comes to be contained in the fluids, Gravel is frequently produced, and the disposition to gouty inflammation is liable to take place.

WE set off with professing to treat of Gout only; but as it appears to depend upon the same state of the body which gives occasion to Gravel, the prevention

and cure will in general be the same. Of that which is to follow, the greatest part may be applied to both, when neither is specified. To save repetition, and convey our meaning by a general term, that habit of body in which there is a preternatural quantity of calcareous earth, or a sufficiency to prove the cause of disease, shall be called the calcareous habit.

THE circumstances which have a tendency to produce this habit, are next to be considered : for on the knowledge of these the removal of it must depend.

THE principal, or rather the only causes of calcareous earth being contained in the fluids, are ACIDS. This is an assertion which may at first appear extraordinary ;

ordinary ; but the more it is considered, the better it will be confirmed. That they are the source of a calcareous habit is certain ; the manner in which they operate, so as to produce it, is doubtful.

PERHAPS the stomach and intestines are never free from a mixture of calcareous earth ; it may be taken in by accident, with a variety of substances which we eat and drink, or it may be formed by the process of digestion ; but this I do not take upon me to assert positively, having never made experiments to obtain the proof. Calcareous earth is a solid substance, and on that account little adapted for being absorbed by the lacteals : therefore it may exist in the primæ viæ, without getting into the blood-vessels. We are

aware, that Mr. John Hunter, the most eminent physiologist of the present age, is of opinion, that solids may be absorbed as readily as fluids. It is with reluctance that we differ from so high an authority; but we cannot help thinking, that solid matter is always in some manner rendered fluid before it can be taken up, and that calcareous earth in the form of earth, however minute the particles, is never absorbed from the intestines; but if it meets with an acid, it will unite with it so as to form a salt, which will be dissolved by the aqueous fluids in the alimentary canal, and carried with them into the blood-vessels. Thus it may get into the circulation, in combination with another substance.

IN the fluids of the body, there is always contained a quantity of volatile alkali, which is certainly produced by the operations of the animal œconomy ; acids have a stronger attraction to calcareous earth than to volatile alkali. If such earth, pure and uncombined with fixed air, is applied to a compound of volatile alkali with an acid, it will unite with the acid and dislodge the alkali. But if fixed air is admitted, a very different effect will take place ; the volatile alkali will take possession of the acid, and the calcareous earth will unite with the gas : this is a peculiar compound elective attraction, which is learnt from experience, but could not have been foreseen. The volatile alkali in the body is combined with fixed air ; it will therefore be the means
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of precipitating the earth from its compounds with acids.

THIS is, perhaps, the manner in which acids bring on the calcareous habit. There is another way, however, in which they may be supposed to operate so as to produce it.

IF they are absorbed from the intestines, and carried by the blood into the bones, it is not improbable that they may take up a part of the earth which enters so largely into the composition of these substances. If the particles of madder, which give a red colour to the bones, were of an acid nature, can it be doubted that they would unite with the earth with which they come in contact? We are
not

not enabled to say, from any change in the appearance, that acids are permitted to enter their vessels : however, it is not unlikely that they do.

It may be objected, that if this was the case, the bones would by degrees lose their firmness, and in the end become soft. But that does not follow : for whenever, from an accidental cause, there is an extraordinary waste of the matter of the body, the system is endowed with a power of supplying the deficiency : and the actions of life are exerted to obviate the mischief that would arise from the loss. Thus, frequent bleeding, instead of producing emptiness of the vessels, is apt to occasion plethora.

BUT it does not signify in what manner acids are instrumental to calcareous earth being conveyed into the blood-vessels ; it matters not whether they take it from the intestines or from the bones. The circumstance of most consequence to be ascertained is, that a calcareous habit is produced by their means, and that from this effect they become the sources both of Gout and Gravel. Whether or not, we are right as to the mode, we are convinced as to the fact, that acids taken in by the mouth, or generated in the stomach, are almost the only causes of that habit.

To many this idea may appear exceedingly absurd, when they consider that the most striking quality of such substances, is to unite with calcareous earth so

as to alter its very nature. But it is, perhaps, that virtue in the acid, on which the seeming absurdity is grounded, that produces the effect; it dissolves and carries with it into the circulation that earth which otherwise would have been evacuated with the excrement; or it takes from the bones that which formed a part of their composition. In the blood-vessels it meets with a substance with which it unites, and the earth is precipitated. Thus that which at first had the appearance of being an absurdity, is found, upon mature consideration, to be not only probable, but almost inevitable.

How many physicians would have prescribed acids as a remedy for a calcareous habit? It is to be feared, that the medicines

cines which are applied towards the cure of diseases; have but too often the effects of adding to the causes which produce them.

AN excess in the use of punch and wine is frequently the occasion of a calcareous habit. When it has arisen from too free an indulgence in these liquors, it has been attributed to their spirituous or intoxicating qualities. This, however, will be found to have been a mistake : by these properties the body may be put into a condition to fall more readily into the dispositions which a calcareous habit has a tendency to produce ; but they are not the cause of that habit : it is occasioned by the acid which is usually contained in wine or punch ; and they prove active in
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giving rise to Gout or Gravel, not in proportion to their strength, but to the quantity of acid which is mixed with them.

It is well known, that brandy and water, or rum and water, by themselves, are not nearly so prejudicial in these diseases, as when taken with the addition of acid. The common people are very sensible of this: they recommend gin and water to be drank in gravelly complaints. The gin, from containing a little oil of juniper-berries, has been supposed to possess some specific power in disorders of the kidneys; but that is by no means the case: the proportion of oil is very minute. The virtue of the gin and water is mere-

ly negative, and consists in the absence of acid.

TARTAR is an acid which is the product of fermentation, and is contained in fermented liquors. The disposition of wines to produce the calcareous habit, is not in proportion to their strength, but to the quantity of this substance which is dissolved in them. In the strongest wines there is the least of it, the spirits causing it to be precipitated in the cask; accordingly, they are not near so frequently the occasion of Gout and Gravel as the weaker wines, in which the solution is sometimes concentrated. This is a circumstance which has excited the admiration of many. It gives a flat contradiction to the opinion which has been commonly maintained

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ed, that these diseases proceeded from the intoxicating qualities of wine. For one instance of Gout arising from the use of Madeira or Sherry, there are twenty of its being produced by Claret.

As a farther proof that Gout and Gravel depend upon the same alteration in the system, it may be observed, that the wines and other liquors which have the greatest tendency to occasion the one disease, are most active in producing the other.

WINES and punch are the compositions in which acid is most frequently taken into the body in such quantity as to cause a calcareous habit ; but if it is used to ex-

cess in any other form, the same effect will ensue.

THE fluids may become impregnated with calcareous earth by means of an acid generated in the intestinal canal. The digestion of the food is a process of a peculiar nature, which never can be made to take place, but in the stomach of a living animal. The attempts to imitate it have been futile and absurd. The conversion of the food into chyle, has often been termed a fermentation: and it is of no consequence what name it goes by; but the word fermentation was first employed from an idea that the change was similar to that which naturally arises in animal and vegetable matter deprived of life. There is not, however, the least analogy.

analogy. In a healthy stomach the common fermentations are never suffered to occur: they are resisted in substances, which are most liable to run into them, and they are corrected in things where they have already begun. When the powers of digestion are perfect, acidity or putrefaction in the *primæ viæ* cannot happen. But the tone of the stomach is not more durable than that of the other parts of the body; it may be deficient by nature, or it may be diminished by accident; and whenever a weakness from any cause exists, digestion is imperfectly performed, and the common fermentations are liable to take place. Putrefaction or acidity is produced according to the nature of what has been swallowed. From one or other of these, the symptoms usu-

ally attributed to bile, most commonly proceed.

It has been too much the fashion in physic to put down as the cause, that which is only an effect. The bile is a fluid natural to the primæ viæ, and perhaps never occasions any mischief; on the contrary, the increased secretion of it, which takes place when the stomach is disordered from putrefaction or acidity, appears to be nature's remedy for the existing evil.

PUTREFACTION in the stomach proves the source of many diseases, and tends greatly to increase the weakness which occasioned it; but it is the formation of acid, that has a peculiar tendency to produce

duce the calcareous habit. People, in whom Gout or Gravel make their appearance, are remarkably subject to flatulency, which is always a consequence of putrefaction or acidity in the canal ; acidity is more frequent than putrefaction, because a mixture of animal and vegetable substances is more liable to run into the acetous than into the putrefactive fermentation.

THAT accurate observer, Dr. Sydenham, has said, that he considers a weakness of the digestive faculties as the primary or antecedent cause of Gout. The acid, which is generated in consequence of such weakness, is certainly very active in producing the calcareous habit. It is a frequent cause of Gout and Gravel, To that, or to the swallowing of acids,

almost every instance of these diseases may be traced. We are at a loss to determine which are the most fertile sources : indeed they frequently go together. An excess in those liquors in which acid is taken in the greatest quantity, seldom fails to injure the stomach ; and in this manner the spirituous qualities of wines and punch become accessory towards causing the calcareous habit ; for, by weakening the powers of digestion, they give occasion to the formation of acid.

CALCAREOUS earth may get into the circulation by being taken in by the mouth, in combination with an acid. In many waters it is found in this state. The hardness of water is usually owing to its containing felenitic salts. If such are
drank

drank in considerable quantity, or used for the purposes of cookery, the calcareous habit will be produced. Waters of this kind have long been condemned in nephritic complaints: they are equally pernicious in Gouty affections. Calcareous earth by itself is frequently exhibited as a medicine, but it has not the least tendency to produce or increase the calcareous habit, provided it does not meet with an acid in the intestines; on the contrary, by correcting the disposition in the stomach to the formation of acid, it has sometimes been efficacious in removing that habit.

GOUT and Gravel are never met with but in the bodies of those people, in whose fluids there is a preternatural quantity of

calcareous earth. Such earth is always conveyed into the vessels by the means of acids, which, on that account, may be considered as the primitive causes of both diseases.

It may be remarked, that if the calcareous habit is occasioned by the use of acids, no body should be free from it; because, though all are not equally liable to acidity from indigestion, there are few who do not occasionally employ a little acid, or water in which a proportion of selenites is dissolved.

NATURE has in some degree guarded against the effects of acid by means of the bile. The property in that fluid of destroying acidity, has been perfectly ascertained

ained by experiment. A certain quantity, taken into the body or formed in the stomach, will be got rid of in this manner. But if there is more than the bile is sufficient to saturate, it will undoubtedly have the effect of conveying calcareous earth into the blood-vessels : and this, together with the use of selenitic waters, is the reason why a portion of that earth is contained in the fluids of most people. But it has already been observed, that a very little of it does not appear to give occasion to Gout or Gravel. It is from an excess in the use of acids, or from the formation of a great quantity in the stomach, or from the employing of water strongly impregnated with selenites, that the state of the fluids, which we have termed the calcareous habit, arises, in which

which the proportion of earth is sufficient to prove the cause of disease.

THE Gout is one of those diseases which are called hereditary. If a person had a mind to quarrel with words, it might be disputed, whether or not any disease could be so termed with propriety, and much might be written on both sides. It is a fertile ground for argument, which, out of mere compassion, we leave open for some author, *that would be*, who finding himself at a loss for a subject, shall be happy to seize hold of an epithet.

IN the catalogue of diseases, there is not one which is more generally entailed by parents upon their children, than Gout. This circumstance may be advanced as

an argument against the opinion, which has been delivered, viz. that it proceeds from calcareous earth conveyed into the fluids by means of acids. It may be asked, How then can it be hereditary, when all are exposed to the effects of acids?

The propriety of such a question must be admitted, and the objection is seemingly of weight. But, if it shall appear, that a disposition to the use of acids, or to the formation of acid in the stomach is hereditary, the force of the argument will be done away. For it is exactly the same thing, whether the disease itself, or the sources from which it springs, are considered as hereditary.

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In the first place, the habit of drinking is hereditary. The passions for particular pleasures or vices, depend upon peculiarities in the system, and are generally observed to run through a family. Example too, and habit, have great influence upon a man. A parent who is given to indulge in liquors, will be less anxious to caution his son against their pernicious effects, than another of stricter sobriety would be ; and a child will naturally take delight in that which appears to afford so much pleasure to his father. From these considerations, the diseases intailed upon drinking might, without much impropriety, be regarded as hereditary.

BUT the acids in wine and punch are not more instrumental in producing the
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calcareous habit, than that which is formed by the acetous fermentation in the stomach. Now, a weakness in the powers of digestion, is, perhaps, more pointedly hereditary than any other affection.

THE disorders which have gone by the name of bilious, are constantly found to prevail in whole families. These proceed from a want of tone in the stomach, and are most frequently the symptoms of acidity. This want of tone has usually been considered as the effect of Gout and Gravel, but in fact it is the great hereditary cause, from which they arise.

WHOEVER considers these circumstances, will not be surprised that a calcareous habit, with the diseases that proceed
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from it, should appear to be communicated by parents to their offspring.

An hereditary disposition to the use of acid, and an hereditary weakness of the stomach, giving occasion to the generation of acid, are hereditary sources of Gout and Gravel.

A readiness to become susceptible of Gout, when the cause of that susceptibility is applied, may be hereditary, as was formerly mentioned ; or, in other words, a quantity of calcareous earth in the fluids, which would have no effect upon one constitution, may produce the disposition to Gout in another.

IT was likewise observed, that calcareous earth may be contained, in considerable quantity, in the urine, without occasioning any nephritic affection, and that the union of the particles into Gravel depends upon circumstances ; which circumstances may be hereditary.

IN these respects, the aptitude of the body, to be affected with the one disease more than the other, is hereditary.

THE Gout has been said usually to affect people of the greatest strength. There may be something in a robust habit, which disposes the body more readily to take on the susceptibility, when acted upon by calcareous earth. But there is another reason, why it may most frequently

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ly occur in such habits. They have generally voracious appetites, which they indulge to excess; and from an opinion that nothing can injure them, they are apt to make more free with their constitution, in every respect, than people of a delicate frame. In consequence of irregularity, after a certain period, a debility of the body in general, and of the stomach in particular, takes place; so that their digestion becomes impaired, and there commences a disposition to the formation of acid, which, added to what is taken in by drinking, produces the calcareous habit, and they become at once tormented with Gout and Gravel.

WOMEN are seldom afflicted with Gout. There is probably something in their
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their habits, which prevents them from readily becoming susceptible of it.

It is also to be remembered, that they are less exposed to the causes of it, than men are : for drinking is a vice to which they are rarely addicted, and from their customary moderation in eating, they are not very liable to disorders in the stomach. However, they have frequently a sufficient degree of the calcareous habit to produce Gravel. When calcareous earth is contained in the urine, their sedentary life tends greatly to forward the union of its particles, and on this account they are very often subject to nephritic affection. When Gout makes its appearance in a woman, it will generally be found that

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she is exceedingly troubled with acidity in the primæ viæ.

AN excess in the use of acids, or acidity in the stomach, may produce Gravel at any time. Stones in the kidneys and bladder are frequently met with at an early period. When they occur, it is generally in the children of the poor, whose stomachs are not properly attended to, but have been loaded with sour fruits and acescent vegetables. Gout seldom appears till after the prime of life. The bodies of very young people do not appear capable of becoming susceptible of it: they have a power of resisting the tendency in calcareous earth to produce a disposition to this species of action.

BEFORE we enter upon the prevention and removal of a calcareous habit, it is necessary to say something concerning the exciting causes of a paroxysm of Gout, the form of the attack, and the parts which are most commonly affected : at the same time a few hints will be thrown out respecting the treatment during the fit.

IN a habit which has been rendered susceptible of this disease, an inflammation arising from any cause is liable to take on the appearance of Gout. Every thing that stimulates, may become an occasional or exciting cause of a paroxysm. Too great an exertion of the powers of the body, will rouse into action the latent disposition.

INFLAMMATORY affections, of every kind, occur most frequently in the spring and autumn ; and the reason is obvious. The cold of winter gives a habit of contraction to the vessels on the surface, and increases the tone of the system. The heart and large vessels, stimulated by the returning heat in the spring, propel the blood with unusual force ; but the small vessels are with difficulty distended, so that plethora takes place.

A continuance of warm weather causes great irritability, and the body becomes liable to be affected by the slightest causes of disease. The cold in the autumn produces a contraction of the extreme vessels, which were relaxed by the heat ; and the blood being thrown in greater quantity
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upon the viscera, stimulates the heart and large vessels, so as to occasion inflammatory disorders.

THUS the heat in the spring, and the cold in autumn, are attended with nearly the same effects. Where the disposition to Gout is considerable, it may be excited at any time of the year; but for the reasons which have been mentioned, it most frequently makes its appearance in spring and autumn. The heat in the one instance; and the cold in the other, may be considered as occasional or exciting causes.

MANY authors have observed, that a paroxysm of Gout is generally preceded for some weeks by indigestion, flatulency, and other indications of great disorder in

the stomach and intestines ; but that, upon the day before the attack, these symptoms disappear, and the appetite becomes more than usually great.

THIS phenomenon has never been accounted for. The return of the appetite always takes place before any affection of the feet is perceived ; therefore, it cannot be attributed to a removal of the complaint from the stomach to the feet, or any other part.

WE are inclined to believe, that the greater quantity of food which is used in consequence of the disorder in the stomach having abated, is the occasional cause of the fit, which makes its appearance on the next day.

A great degree of acidity in the primæ viæ for two or three weeks together, occasions the fluids to become much loaded with calcareous earth, which produces in the body a strong disposition to Gouty inflammation. The stomach having recovered its tone for one day, by accident, or in consequence of something that has been employed (perhaps without any intention, or for a different purpose) the appetite returns, to the great joy of the individual. He eats with pleasure, and to excess: so that the system is stimulated by the unusual quantity of food, and a paroxysm of Gout takes place. This is the most probable mode of accounting for the frequent coming on of a fit, upon the day after an extraordinary appetite has been perceived. It is a consequence of
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the unexpected desire to eat, having been too much indulged. When there is a considerable disposition to Gout, many substances appear to occasion a paroxysm in the same manner; viz. by encreasing the appetite, so that the greater quantity of food which is used shall act as a stimulus, and prove as an exciting cause. Query, Is not this the effect of the Bath water?

GOUT is an inflammation *sui generis*, of which the body is rendered susceptible, by calcareous earth being contained in the fluids. Perhaps every part that has life may become capable of being affected with it: but there are certain parts which take on the disposition more readily than other parts. It is true with respect to
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this, and some other morbid dispositions, that they are most liable to occur there, where the principle of life is weakest, and the circulation most languid.

THE feet are the farthest removed from the source of the circulation: the force of the heart and arteries is in a great degree spent before the blood gets to such a distance, and the perpendicular situation of the body gives a resistance to its return by the veins. From these circumstances, the lower extremities are apt to take on a disposition to an unnatural mode of action, sooner than the other parts. They are not endowed with so much of that power, by which any thing tending to produce a susceptibility of disease, is resisted and counteracted. The
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positions to mortification, scrophula, and sea scurvy, as well as to Gout, take place most frequently, and in the greatest degree, in them. When an exciting cause has been applied, the Gouty inflammation generally arises in the tendinous and ligamentous parts about the feet.

A topical affection of the inflammatory kind, seldom exists with much violence in more than one part of the body at a time. If it commences in more, that which is strongest has a tendency to cure the weaker ones, as if the attention was drawn entirely to that spot where the greatest injury is suffered.

THE Gouty inflammation, which is of a very acute nature, generally settles
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in one part only, and, if permitted to have its course, the rest of the body remains unaffected.

OF all inflammations, this is, perhaps, the one in which external remedies have the greatest influence ; but the application of them is attended with danger ; for if the affection is removed by the means of art, from the part where it began, in general it will take place in some other part, where perhaps the disposition was nearly as strong. This is not owing to any translocation of matter, a doctrine than which there never was any thing more groundless and absurd. It is from a principle in an animal body, to admit but of one topical affection of considerable moment at a time, although the disposition to such affection

affection is universal over the whole. When the calcareous habit prevails in a great degree, every part of the body is rendered more or less susceptible of Gout. If an occasional cause has been applied, the action will first take place there, where the susceptibility is strongest; but if it is prevented from proceeding in that part, the exciting cause will operate, so as to produce it somewhere else.

THERE is always danger in causing a removal of the inflammation. Sometimes a part of greater consequence to the system will become affected; such as the lungs or the head; and not uncommonly, instead of a particular part, the whole body will in some degree take on the affection. When this happens, the symptoms are
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less violent, but the progress is more tedious, and therefore more dangerous. An affection of the whole, or of many parts, in consequence of a removal from one part, constitutes what has been termed the irregular Gout.

WHEN the inflammation has taken place in the feet, or in any other part, where it cannot be attended with much injury, we are cautiously to guard against every thing that might have a tendency to check it. On the other hand, if an attack is made upon an organ, where it cannot be suffered to proceed without the most imminent danger, it becomes necessary to have recourse to methods of moderating its violence, and of fixing it, if possible, in a part of less importance.

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Attention to these circumstances comprehends nearly the whole treatment during a paroxysm of Gout; and the means of effecting these intentions, are so well pointed out by every person who has treated of the disease, that it is unnecessary to go into the detail of them. The management of a fit has been learnt from experience, although the source of the disease was perfectly unknown. We have nothing new to offer under that head, but are eager to get to a more important part of our subject, viz. the entire prevention of the disposition, or the radical cure of it, when it has taken place.

BUT before we enter upon these points, it is necessary to take notice of an opinion which has universally prevailed, that a
parox-

paroxysm of Gout increases the tone of the system, and gives strength to the body.

It is a property of diseases that are violent in their symptoms, to remove every other disease with which the body happens to be affected at the time of their coming on ; so that when they themselves subside, the patient is left in perfect health. This effect is not peculiar to Gout. A fever is, perhaps, the most universal remedy for every chronic complaint ; and though it produces a great degree of temporary weakness, in the end it becomes instrumental in giving strength, by removing other diseases, which were the cause of lasting weakness. Exactly in the same manner, Gout is

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fecondarily the means of strengthening the system. It effects the cure of rheumatism, disorders in the intestinal canal, spasms, and a variety of little complaints, which, perhaps, did not attract much attention, but, nevertheless, were the occasion of great debility. This effect has led many into an error. It induced them to suppose, that Gout was a salutary operation, a process of nature for the recovery of a debilitated constitution: they conceived, that in certain habits a fit became necessary at certain intervals, and that it had a peculiar property of giving tone to the system. The fact is, that Gout, as a disease of great violence, has a tendency to wear out and weaken. If an attack is of long continuance, much weakness ensues; but in the end, the
body

body is left in perfect health, so that the strength which was lost is very soon recovered. The disease in itself causes debility, but in its consequences it gives strength, viz. by removing all the other morbid affections to which Gouty habits are peculiarly subject. It is not a process of nature for the recovery of the tone of the system, but it is an accidental remedy for those disorders, which occasioned the want of tone. A fever or the small-pox might with as much propriety be considered as efforts of nature: the weakness produced by them is speedily removed, and the body becomes stronger than ever.

✕ A PAROXYSM of Gout has the effect of removing, for a time, the very circumstance

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cumstance, which most frequently gives occasion to the disease: viz. a disposition in the stomach to the formation of acid. The digestion is often perfect for a good while after, and the calcareous habit is so much diminished, that even an alleviation of gravelly complaints takes place. At length, however, the disorder in the primæ viæ returns, a proneness to acidity with nausea, want of appetite, and flatulency, take place, the nephritic symptoms become more troublesome, and the body is rendered so susceptible of Gout, that a very slight cause will produce it. In this case it is frequently advisable to employ some means for exciting the inflammation, that it may prove a remedy for the other disorders. The
Bath

Bath waters are often recommended with this intention.

THE treatment during a fit of the Gravel or Stone is very simple. To relieve pain and take off irritation, are the principal indications. The most powerful remedies are rest, the warm bath, occasional bleeding, gentle laxatives, or glysters, opiates, and other medicines, which soothe and relax.

THE prevention and the radical cure of a disease, must depend upon our being acquainted with the several circumstances, which contribute towards the production of it. On this account we have endeavoured to ascertain with precision, what the particular state of the

body is, in which Gout makes its appearance. After much investigation, it is found to be the same as that in which Gravel arises. They depend upon calcareous earth in the fluids, and such earth is conveyed into the circulation by the means of acids. That class of substances is the source from which those diseases may in every instance be traced.

It might be supposed, that a weakness in the digestive powers, proves the cause of Gout and Gravel, not in consequence of the acidity with which such weakness is attended, but by reason of the general debility which frequently arises from it.

THERE is nothing absurd in such a supposition: but observation evinces,
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that it is not well founded. When a want of tone in the stomach arises, under such circumstances, that acidity cannot happen; as for instance, at sea, when vegetables are not to be procured, and salted animal food only is employed, the greatest possible disorder frequently takes place in the organs of digestion, and a greater degree of universal debility ensues, than perhaps in any other instance; but, provided the use of acids is abstained from, gravelly symptoms, instead of being rendered more violent, are relieved, and Gout ceases to appear. The weakness with which an imperfect digestion is accompanied, may qualify the body, to become more readily susceptible of the gouty disposition; but it cannot produce

that disposition, of which the actual cause is calcareous earth in the fluids.

WE should apologize for having so frequently repeated this observation ; but it is of much importance ; and it cannot be too strongly impressed on the mind, that the *sine qua non* of Gout and Gravel, the circumstance without which they can never occur, is, what we have termed, a calcareous habit, viz. a preternatural quantity of calcareous earth in the fluids. It is equally necessary to remember, that such a habit is the consequence of a too free use of acids, or of the compounds of acids and calcareous earth, or that it proceeds from the acetous fermentation taking place in the stomach.

SOME

SOME have been of opinion, that the plethoric state of the system, which is apt to arise from a full diet of animal food, is the occasion of Gout. But this is by no means the case. Plethora alone cannot produce the disposition. Excess in eating proves a source of it, by reason of the disorder in the stomach, with which it is frequently attended. By weakening the powers of digestion, it gives occasion to the formation of acid, whenever vegetable food is employed. A plethoric state of the system, disposes to inflammation in general, and may prove an exciting cause of a paroxysm; but it cannot give the susceptibility of this particular inflammation. Gluttony is not followed by Gout till it has first had the effect of injuring the

stomach. The same observation may be applied to a variety of other circumstances which have been assigned by different authors as principal causes of this disease.

VAN HELMONT, from having remarked that Gout might in a great variety of instances be attributed to the use of acids, formed an opinion, that the disease proceeded from an acid humour, stimulating and irritating the tendinous and ligamentous parts. He was right with respect to what may be considered as the primitive cause, but he was mistaken in his conclusion. It will not be asserted, that there is an acid humour in the blood of those people, who are troubled with Gravel: yet acids are as much the primitive

mitive cause of that disease as of the other. Van Helmont drew a rash conclusion from the consequences that were observed to follow the use of acids. If he had attended more minutely to circumstances, he would have found out, that they were not the immediate causes of the disease, but only the means of impregnating the habit with another substance, which produced the disposition.

IN guarding against the effects of acids, consists the material part of the system, by which Gout and Gravel are to be cured and prevented. The means of doing this may come under three divisions, viz.

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1st. ABSTINENCE from the use of acids.

2dly. THE prevention of acidity in the stomach or intestines : and

3dly. THE refraining from water, or other liquors, in which are contained any of the compounds of calcareous earth and acids.

UNDER these heads we shall point out a method by which two of the most painful and dangerous diseases to which human nature is subject, may be not palliated merely, but radically cured and entirely prevented.

ABSTINENCE from the use of acids is first to be considered.

It is an unfortunate circumstance that many of this class of substances are pleasing to the taste and grateful to the stomach. The liquors in which they abound, are sought after with avidity. They are a principal ingredient in those compositions, which give a temporary relief to the troubled mind, and drown in oblivion the cares of life. To refrain entirely from any thing so desirable to the palate, and so bewitching in its effects, will require a greater degree of self-denial than mankind in general possess. The apprehensions, and even the certainty of future evil, are in many cases

cases insufficient to make us part with a present enjoyment.

ACIDS are taken into the body in greatest quantity with punch and in fermented liquors. That of punch is usually the native vegetable acid, which is contained in fruits. This substance is capable of being digested by the powers of the stomach; and when digested, it loses the properties of an acid: but in combination with spirits and water, or in the form of punch, it resists these powers, and produces all the effects of an acid in the body.

PUNCH is a fruitful cause of the calcareous habit, and the effect is owing principally to the acid. The spirits too
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produce their peculiar ill effects. If used to excess, they may prove secondarily the source of such a habit, by weakening the powers of digestion, and giving occasion to that state of the stomach in which the formation of acid takes place; but they are not so immediately and so inevitably hurtful as the acid, which will very often produce that habit, without any affection of the stomach supervening. Lemonade alone, if frequently employed, and in great quantity, will occasion it. If a liquor of this kind cannot be refrained from, it should be used without acid. Brandy and water, or rum and water, with or without sugar, are much less injurious than the same compounds with the addition

tion of four fruit. We are not to be understood as recommending them, or as insinuating that they are entirely inoffensive. Perhaps when used with great moderation, so as not to injure the stomach, they are not productive of much harm. Punch with acid ought never to be employed on any account. If long persisted in, it seldom fails to produce the calcareous habit, in constitutions originally the farthest removed from it.

TARTAR is an acid which is the product of fermentation, and is contained in a greater or less proportion in all fermented liquors. It requires between twenty and thirty times its weight of water to dissolve it; and if to the solution a certain quantity of spirit is added,
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the tartar will be precipitated. This substance is generally contained in the largest proportion in the weaker wines: the spirit in them not being sufficient to cause much precipitation; whereas in many of the stronger ones almost the whole is deposited in the cask. In Madeira, Sherry, Port, and other full-bodied wines, the spirit is commonly in such quantity as to render them inflammable. When they are in this state, the proportion of tartar is very minute, and such wines are not by any means so liable to produce the calcareous habit as the smaller wines in which the solution is more concentrated. Of the latter class, claret is the one that is employed in the greatest quantity, and from which the most frequent mischief arises. But for this circumstance, it would be
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a desirable liquor. It is grateful to the taste ; its intoxicating quality is inconsiderable, and it has no great tendency to injure the stomach. So far it is preferable to the stronger wines : but these advantages are much more than counterbalanced by that one defect, the acid which is contained in it. Like acidulated punch, it is liable in every instance to produce a calcareous habit. When that habit exists, it should be avoided as poison.

THE disposition of claret to increase gouty affection, has long been remarked ; but the actual reason of its producing this effect, has not been suspected. It was said to be too cold for the stomach, by those who could not otherwise account
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for its operation. That, however, is by no means the case; for of itself it is just sufficiently stimulating. The stronger wines are too warm, and require often to be diluted with water. It is not from its effect on the stomach that claret becomes so extremely injurious: it is from its acid principle, which acts powerfully in promoting the calcareous habit.

A TOTAL abstinence from wine is hardly to be expected. Life without enjoyment is a burden. A man that mingles with society, must be at perpetual variance with his inclinations, if he refrains entirely from fermented liquors; and it is a painful state, to be in the act of always resisting a temptation. The kind of regimen that has been commonly

prescribed for gouty persons, must have kept them continually employed in combating their passions. A great part of it was not only unnecessary, but frequently improper. Let some people pretend what they please, it is generally confessed that the pleasures of eating and drinking are not the least considerable in this world. Even those who affect to hold a different opinion, do not always appear to be the least alive to them. An observance of the rules which have been laid down for the prevention of Gout, by some of the most eminent physicians, would be to many a more severe punishment than any that the law can inflict. In some of these regulations, they were right by accident; in others they were egregiously wrong,

wrong, from not knowing the nature of the causes which produce the disease.

If proper attention is paid to the choice of wines, a total abstinence will be unnecessary. There will be no great hardship in suffering some restriction concerning the kinds that are used, especially as those which are most proper, are by no means the least agreeable.

VERY strong wines contain little or no tartar. On this account, if it is otherwise good, that in which the proportion of spirit is greatest, should be preferred. Madeira and Sherry are excellent wines, and may be used in moderation. Good old mountain and full-bodied Port, are not very exceptionable, but the weaker

wines, such as Claret, Champagne, and Lisbon, must be entirely renounced.

ANOTHER circumstance of great importance to be attended to, is the age of wine. When they are first made, they frequently contain, besides the tartar, a quantity of the native vegetable acid of the grape. This is always the case with respect to Rhenish, and often with respect to Madeira and others. On this account, new wines should be studiously rejected. Any fermented liquor, in which acidity is sensible to the palate, must be pernicious. To have done with this article, it is only necessary to observe, that wine of any kind, if used to excess, so as to intoxicate or to injure the stomach, must become very detrimental

tal, by laying the foundation for acidity in the *primæ viæ*.

WITH attention to these circumstances, such wines as have been recommended, do not appear to produce any harm, but are of use in promoting digestion.

WHEN the calcareous habit prevails, cyder and perry, and strong ales, should be avoided. From the quantity of tartar, or of native vegetable acid, contained in them, they have all the ill effects of the weaker wines, with the farther disadvantage of proving injurious to the stomach, from their impurity. Raisin, and all other home-made wines, are extremely pernicious.

ANY person may be satisfied with the truth of our theory, by a jaunt to the cyder counties, where the frequency of the diseases of which we are treating, cannot fail to convince him, that acids are the primitive sources of both.

THE proportion of fermentable substances employed in making small-beer, is very inconsiderable. It does not contain much tartar; yet when there is a disposition to Gout and Gravel, it is better to abstain from it. It is to be objected to on another account, as much as for the little acid that is in it, viz. because that when the powers of digestion are weakened, it is very liable to run into the acetous fermentation in the stomach. Upon the whole, the use of it is attended
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with considerable risk, and the refraining from it with but little inconvenience. Water by itself is unpleasant, from its insipidity: but when flavoured with a very little rum or brandy, or a small proportion of full-bodied wine, it becomes an agreeable substitute for small-beer. If these are disliked, toast and water, or barley and water, may be employed. An infusion of saffrafras, or of any of the aromatic herbs, will be very proper as common drink: they will quench thirst, and at the same time tend to strengthen the stomach and promote digestion. Sydenham recommended a diet-drink, to which he attributed the power of preventing both Gout and Gravel. The principal ingredients in it were sarsaparilla and saffrafras, and its chief vir-

tue consisted in the absence of acid. It did good by being used in the room of a substance, viz. beer, which would certainly have done harm.

IN punch, and in most fermented liquors, the greatest quantities of acid are apt to be employed : but there are other methods of using it, which require consideration.

MOST people are in the habit of taking vinegar with many substances that are employed in food. A certain quantity of acid is destroyed by the bile with which it mingles in the intestines ; and a little vinegar or of any other acid may be got rid of in this way : but a given quantity of bile is only sufficient for the destruction

tion of a given quantity of acid. If vinegar is taken to excess, or if the use of it is accompanied with that of any other acid, or with the formation of acid in the primæ viæ, the bile will not be sufficient for the destruction of the whole; so that a quantity will remain unaltered, which will be the means of conveying calcareous earth into the circulation. Vinegar therefore should be used very sparingly, or not at all, by persons who are desirous of being relieved from Gout and Gravel.

ACIDS are remedies of efficacy in some diseases: but when the calcareous habit is known to exist, they should not be resorted to without necessity. There are
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instances of that habit having followed the use of them as medicines.

IN the juices of many fruits, and of certain vegetables, there is a quantity of native vegetable acid. It has been already observed, that this substance is capable of undergoing the process of digestion, and of being converted into chyle.

FRUITS are a part of the natural food of man. It is impossible to conceive that they were scattered so liberally by the hand of Providence, and so strong a passion for them implanted in our natures, if they were not intended to be eaten. In the natural state of the body, they afford nourishment, and are conducive to health.

health. But they are extremely liable to run into the common fermentations; and for this reason they must be always rejected, whenever the powers of the stomach are imperfect by nature, or from accident. They then become hurtful, from their natural acidity, which in that case is not destroyed by digestion, and likewise from their readiness to become sour in the *primæ viæ*.

It is remarkable, that a diluted solution of any thing in water, is acted upon by the digestive powers, with greater difficulty than a more concentrated one, whereas on the contrary, it enters more readily into the common fermentations. From this circumstance, the juices of fruits are rendered more pernicious by
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being diluted with water: and on the other hand, the objections to them may be greatly diminished by the addition of sugar. When the solution of sugar is concentrated, as is commonly the case in fruit pies, they are readily digested, and do not appear capable of producing any mischief; but a mixture of the juice of fruit with water, though grateful to the palate, can seldom be endured by the most healthy stomach.

WE have touched upon the several methods in which acids are usually taken into the body. The observance of rule with respect to these substances, is of great importance. When Gout and Gravel originate entirely from the use of acids, unconnected with any disorder in
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the stomach, a cure may be effected by proper attention to the regulations which have been laid down. When the use of acids co-operates with the formation of acid, in producing these diseases, much good will arise from one-half of the cause being removed. As a moderate quantity of proper wine has been allowed, there can be no great difficulty in refraining from acid under every other form. It is always to be recollected, that when there is a calcareous habit, every particle of acid that is employed, will be an impediment to the removal of it.

WE come next to consider the second general division, viz. the prevention of acidity in the stomach and intestines.

THE

THE state of the stomach has been attended to by most authors, who have treated of Gout or Gravel. Some have suspected that the disorder in the organs of digestion was a principal cause of those diseases, but more commonly it has been considered as an effect.

IT is certainly a cause, one of the most frequent causes, and the grand cause of their appearing hereditary; for of all the dispositions to which the body is subject, there is not one more deserving the epithet of hereditary, than a disposition to a weakness in the powers of digestion. It may likewise be produced by irregularity and intemperance, in persons who are by nature free from it: and whenever it exists, from whatever cause

cause it may have arisen, vegetable substances are liable to become acid, and animal food to become putrid.

WE have given it as our opinion, that the acidity which usually attends upon a disordered digestion, is the circumstance which produces a calcareous habit. We know of no means by which calcareous earth is conveyed into the circulation, but through the medium of acids. It has been observed, that the universal debility arising from a want of tone in the stomach, appears to put the body in a condition to be more readily acted upon by calcareous earth, so as to become susceptible of Gout: but such disorder, or such debility, cannot of themselves produce the disease: they have
only

only the effect of rendering the circumstance which does produce it, more certain in occasioning it. We again repeat, what we have frequently asserted before, that both Gout and Gravel depend upon calcareous earth in the fluids; and that such earth is carried into the circulation by acids. This is the hinge upon which the whole doctrine turns, and therefore it cannot be made too strong.

THERE are three methods in which acidity in the primæ viæ may be conquered or diminished.

1st. By employing in food such substances only, as are little disposed to the acetous fermentation.

2dly.

2dly. By strengthening the stomach, so that digestion shall be properly performed, and the common fermentations resisted.

AND 3dly. By employing some substance, which shall unite with the acid as fast as it is formed, so as to alter its properties and render it inactive

IT has been laid down as a maxim, by some of the most eminent men in the profession, that a radical cure of Gout was not to be expected, without a total abstinence from animal food. They conceived that the disease originated in a richness of blood, and other circumstances which do not in the least contribute towards its production, and their specific was starvation.

tion. This was a remedy to which they might venture to attribute many virtues without danger of detection; for very few would be at the pains to disprove what was said of it.

THE kind of food most proper to be employed for preventing or removing a calcareous habit, will undoubtedly be that, which has the least disposition to run into the acetous fermentation. Animal matter, by itself, is incapable of such fermentation; and if a person was to subsist upon it entirely, without any admixture of vegetables, and without using any acid, he never would be afflicted with Gout and Gravel: but the experiment would be attended with danger; for a disposition to putrefaction in the fluids, and
other

other very serious diseases, might be produced. On this account it becomes necessary to employ vegetables also.

ALTHOUGH animal substances are themselves incapable of the acetous fermentation, they are found to have the effect of forwarding it, in such substances as are naturally disposed to run into it. A mixture of animal and vegetable matter, if put into circumstances of fermentation, will more readily become acid, than vegetable matter by itself: thus, barley-broth is more apt to turn sour than barley water. It is from this property in animal food, that advantage has sometimes been derived from leaving it off. It has not in itself the least disposition to produce a calcareous habit; but it may sometimes

do mischief by disposing the vegetable part of the diet to become more readily acid. If, however, proper attention is paid to the kind of vegetables that are used, meat may be indulged in without the least impropriety.

It is not our meaning to investigate the properties of the various substances that are employed as aliment. Most people are as well acquainted from experience, as professional men are from theory, with what is digested most readily, and with the greatest difficulty. Every thing that has a tendency to disagree with the stomach, is highly improper. For this reason, substances of much flavour, such as geese, ducks, pork, salmon, or herrings, must be avoided. Fat and butter,

ter, and oily substances, are extremely disagreeable to weak stomachs. The lean of beef, mutton, or veal, roasted or boiled, and any kind of fish or fowl that is light and easy of digestion, may be used in that quantity which the appetite requires. Savoury substances, and greasy rich dishes, cannot be endured in that state of stomach which is usually met with in Gout and Gravel: they do great mischief, by increasing the weakness which gives occasion to the formation of acid, and also by rendering the body more readily susceptible of the gouty disposition. Milk, if it does not disagree with the stomach, may be employed with propriety: it is sometimes liable to become acid, but that defect may be corrected by adding sugar to it.

OF vegetables, the best are those which are least disposed to run into the acetous fermentation. Greens, fallads, and all the looser vegetables, are very improper. Beans and peas are apt to produce flatulency. The farinaceous feeds, such as wheat, barley, rice, and oats, may be used in any form. New bread should not be employed. Rusks, or toasted bread, are the best, as being least apt to ferment. All the substances which are usually known by the names of flatulent and bilious, must be avoided; and as a general caution, any thing that has, from experience, been found to disagree, should never be ventured upon.

It is not an easy matter to give particular directions respecting diet: the effects

fects of substances upon different stomachs, are very various. Every man, in a matter of this kind, must judge for himself. It is sufficient to observe, that any thing, whether animal or vegetable, which is digested without producing disorder, cannot be attended with any ill consequences; and that every thing which disagrees, must be the cause of mischief.

MANKIND, from habit, are so much attached to tea and coffee for breakfast, that it is difficult to substitute in their room any thing which is equally agreeable. They should be well sweetened, from the principle which has already been stated, that a strong solution of sugar is more easily digested, and less liable to

run into fermentation, than a more diluted one. Butter is always to be rejected, but a considerable quantity of dry toast should be eat with the tea or coffee. The toast may be rendered more agreeable by being spread over with honey.

OF late it has been very much the fashion to recommend honey in gravelly complaints. It's virtues, like those of Sydenham's diet-drink, are of the negative kind: it does good, by being used in the room of a substance, which would have done mischief; for to a weak stomach, butter is always injurious. Honey has been supposed to be of use as a diuretic: the effects of such medicines shall be hereafter considered.

THE fashionable hours of dining, are extremely pernicious to weak stomachs. Long fasting always produces flatulency; and if any thing is eat in the forenoon, the appetite for dinner is taken off: however, it is better to risk the latter effect, than the former evil; and therefore, if dinner is to be deferred till a late hour, a biscuit, or a basin of soup, should be taken about one or two o'clock.

GREAT regard must be paid to the quantity of food that is employed. If the stomach is over-loaded, no matter with what, mischief will always ensue. It has frequently been recommended, to eat but of one substance at dinner: attention to this rule is not of material consequence, provided a variety of substances

stances are not permitted to act as temptations to eat too much. Excess in eating is a principal cause of disorder in the stomach.

GREAT injury arises from a heavy supper : it prevents sound sleep, upon which the strength of the stomach and of the whole body so much depends. Lobsters, ducks, and other rich foods, are very improper. If people would eat less supper, and go sooner to bed, they would seldom complain of restless nights, or of a want of appetite at breakfast. If milk is not disliked, it may be employed with propriety at breakfast and supper.

By proper attention to diet only, the disposition to the formation of acid may
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frequently be corrected, and the calcareous habit removed; whereas, negligence in this respect will render every other remedy of no avail.

THE second method of preventing acidity in the primæ viæ, is by strengthening the stomach, so that digestion shall be properly performed, and the common fermentations resisted.

A MAN in the full and perfect enjoyment of the powers of digestion, is not obliged to observe any nicety with respect to the substances which he eats or drinks; but when by nature, or from intemperance, these powers are deficient, it is at times almost impossible to find any thing that will not in some manner disagree

agree. The choice of food is not always in our own power: the occurrences of life may reduce us to the necessity of occasionally employing that which is the most adverse to our -constitutions, or repugnant to our wishes. If the powers of digestion can be increased, less mischief will arise from any that is improper, when used from necessity or inattention.

THE state of the stomach is intimately connected with that of the system in general. It has been observed by some, that when there is an improper digestion, the size of the body shall increase, and there shall be a considerable degree of apparent strength, which, however, will vanish on being put to the proof. This is frequently the case with people of a gouty habit.

habit. Their powers of exertion are not in proportion to their bulk. Positive strength, and a capability of bearing fatigue, are wanting.

PEOPLE of every age are liable to a want of tone in the stomach; but it is not commonly perceived in so great a degree in the early part of life as in the decline. The disposition to it is natural to many constitutions at a certain period, and it is often the consequence of accident or irregularity. It is an affection of which the beginning symptoms should be cautiously watched; for, like many others, it is more easily prevented than removed.

IN giving tone to the stomach, our principal view is, to prevent the acetous fermentation taking place in it when vegetable food is employed. It will be of great importance to consider, by what cause the weakness has been produced. If intemperance and irregularity have been the occasion of it, attention to the rules that have been laid down respecting eating and drinking, will go a great way towards effecting a cure. A moderate quantity of proper wine, proves an agreeable stimulus, and tends to promote digestion; but if it is used to excess, it enervates exceedingly. Gluttony is equally pernicious. If more food is employed than is necessary for the nourishment of the body, an exertion is required to get rid of the superfluous quantity,

quantity, and by such exertion, the powers are at length exhausted. A person subject to disorder in the *primæ viæ*, besides circumspection in respect to the quality of the substances which he eats and drinks, should take care to keep rather within the demand of his appetite. Habit and our inclinations lead us to employ more food than is wanted. The proper quantity cannot be defined by weight or by measure. It is very different in different constitutions, and in the same constitution at different periods.

EXERCISE is of singular service in promoting digestion. Gout and Gravel have been termed the diseases of the indolent and lazy. Exercise gives strength to the whole body ; and from the waste of fluids,

which

which it occasions, it renders a greater quantity of food necessary. The lower class of people, who labour hard, are seldom troubled with a loss of tone in the stomach : their occupations secure them from what are called bilious disorders. It would seem strange, to hear a coal-heaver complain of flatulency or the heart-burn. The instances of labouring men being affected with Gout or Gravel, are very rare ; and when they do occur, it is generally owing to an inordinate use of acids, or acescent food, or to acidity in the stomach, brought on by intemperance. In preventing acidity or putrefaction in the stomach, exercise is of as great efficacy as any other remedy. If much is employed, a greater latitude is allowable in regard to the quantity of food :

food: but the sedentary ought always to put some restraint upon their appetites: they cannot with impunity indulge them to their full extent.

Too much cannot be said upon the necessity of using exercise: it not only prevents the calcareous habit, by promoting digestion; but supposing that habit to exist, it renders the body less readily susceptible of the gouty disposition, and proves a hindrance to the union of the particles of calcareous earth into Gravel or Stones. The people who would wish to be relieved from Gout and Gravel, must absolutely avoid a life of indolence.

THE mind has vast influence over the actions of the stomach. Grief, anxiety, and other violent passions, rarely fail to cause indigestion. The fretful and the irritable, are peculiarly subject to disorders in the *primæ viæ*: and people of a melancholy cast are seldom free from a calcareous habit. Cheerfulness and content are of singular efficacy in the preservation of health. For the prevention or cure of the diseases under consideration, it will be of much importance to avoid weighty cares, and every thing that can agitate or disturb. It is to be lamented, however, that a natural irritability or gloominess of mind are with difficulty got the better of. It is much easier to preach philosophy, than to put the tenets of it in practice.

EMETICS may be employed with considerable advantage in giving strength to the stomach. When disorder has taken place, they prove of service by evacuating the offending matter; for when an improper fermentation has arisen, it will be communicated to every thing that is taken in, while any of the matter that had entered into such fermentation, remains in the *primæ viæ*. Much benefit has been derived from the occasional use of ipecacuanha, in small doses, so as to vomit once or twice. Many have been apprehensive, that the powers of digestion would be weakened by emetics; but when judiciously employed, they appear always to produce a contrary effect. The action of vomiting has a tendency to remove disorder in other parts of the system, and

on that account too, they are conducive to health.

THE state of the intestines must be attended to. A looseness is to be checked by a little rhubarb, or some mild restraining; and costiveness must be prevented by laxatives, if necessary. When there is no disposition to piles, aloes are the most proper for this purpose: next to them sulphur is the best.

A VARIETY of substances may be employed as medicines for the purpose of increasing the tone of the stomach. Bitters have this effect in a great degree. Camomile, wormwood, gentian, carduus benedictus, columbo-root, orange-peel, and many others, are of much efficacy.

An infusion of them in water may be drank in the morning fasting, and about an hour before dinner. These substances alone, by preventing the formation of acid, will sometimes be the means of removing a calcareous habit. From the relief which they frequently afford in the Stone and Gravel, some of them have been considered as solvents. The *uva ursi*, in particular, has been ranked among the medicines which were supposed to have the power of dissolving concretions in the kidneys and bladder. This effect is a farther confirmation of the doctrine which has been advanced, that calcareous earth is always conveyed into the circulation by means of acids; for every substance that succeeds in preventing acidity in the *primæ viæ*, will be found efficacious in removing a

calcareous habit, and the diseases which depend upon it, provided that the use of acids is abstained from. It is a notorious fact, that bitters, by correcting a disposition to the formation of acid in the stomach, have effected the dissolution of urinary calculi; for when the state of the fluids is altered, and the deposition of fresh earth is prevented, the Stone will be acted upon by the urine itself.

BARK and other medicines of similar properties have been employed in substance, and in large doses, with a view to prevent a paroxysm of Gout in habits where the disposition to it was considerable. The Portland powder was given with this intention, and the disease has undoubtedly been kept off by it for a length of time. But
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the practice is attended with great danger; for, if by the means of such remedies, the action is hindered from taking place in a body predisposed to it, worse consequences are apt to ensue, and in many cases apoplexy, dropsy, asthma, and other dangerous diseases have been produced.

GOUT is to be cured, not by counter-acting the paroxysm, but by removing the disposition. If a person will obstinately persist in the use of acids, or if he refuses to comply with those rules respecting diet, by which the formation of acid is avoided, the disposition will remain in full force, and he cannot, without the utmost hazard, have recourse to methods of obviating the fits. In all that has

been recommended, and in all that is to follow, the object in view is very different. Our intention is to cure the disease, by removing the circumstance upon which the disposition depends. The remedies are pointed against that, from which the susceptibility arises, viz. a calcareous habit. Such a habit is frequently the consequence of acidity in the stomach, from a want of tone ; and therefore bitters are to be occasionally employed, with a view of increasing the powers of that organ.

IT was a boast with empirics, that their nostrums, which were exhibited for preventing the disease, by counteracting the paroxysms, would be efficacious, although temperance and moderation were neglected. We, however,

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are ready to confess, that these virtues are absolutely necessary for the success of our system; and we give it as our opinion, that if a man is addicted to excess in eating or drinking, Gout is to be encouraged rather than otherwise, as it will prove an occasional remedy for diseases of a more dangerous tendency, which are likely to proceed from his irregularity.

WHEN bitters are intended to act as stomachics merely, small doses are sufficient. Weak infusions in water, with the addition of a bit of ginger, or a few cardamom or caraway-seeds, are as good as any other preparations: or they may be made with spirits into tinctures, of which a tea spoonful or two may be taken at any time in a glass of cold water.

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The tinctura amara, and the tinctura corticis Huxhami, are excellent preparations of this kind. An infusion of the bark in cold water, is an agreeable bitter. Some of the resinous woods are grateful to the stomach, and tend to correct indigestion. When there is a languor in the system, infusions of guaiacum or saffrafras in boiling water, have proved excellent remedies. The infusions are preferable to decoctions, when they are intended to remedy disorder in the stomach: though not so strongly impregnated with the virtues of the woods, they contain all the finer parts, and a large dose is not required.

OF bitters and other medicines, which give tone to the organs of digestion, there
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is great variety ; and it is of use to change them occasionally ; for any one substance when continued for a length of time, is apt to lose its effects upon the body.

CHALYBEATE and other mineral waters are of service in giving strength to an enervated stomach ; and the relaxation from business, which commonly takes place while they are used, contributes in a great degree towards the benefit that is received.

By due attention to the means that have been already laid down, a calcareous habit may frequently be removed. If the use of acids is avoided, and acidity in the primæ viæ effectually prevented, by regard to diet, or by the medicines which have been recommended, the fluids
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will resume their natural state, and the effects which proceeded from calcareous earth will cease. But it is a matter of great difficulty to make people conform exactly to rule respecting what they eat or drink. A little acid will sometimes be used, and the acetous fermentation will be occasionally permitted to take place in the stomach. A calcareous habit will be increased, or at least prevented from being diminished, by a quantity of acid, which would have no effect upon another person. The solution of a Stone cannot be expected, if a particle of earth is contained in the urine. For these reasons, it is necessary to exhibit something for the destruction of any acid that may be occasionally swallowed or generated; and this leads to the third method

thod of correcting acidity in the primæ viæ, viz. the employing certain substances, which shall unite with the acid as fast as it is formed, so as to alter its nature, and render it inactive.

ALKALIS are a class of substances, which unite chemically with acids, in such a manner, that the characteristic qualities of each are lost. The compound that is formed, is in properties, extremely unlike to either of the elements. If an alkali is taken into the stomach, any acid therein contained, will be neutralized, so that its effects upon the body will be obviated.

WHEN in consequence of a weakness of the digestive powers, the acetous fermentation

mentation takes place in the stomach, two points will be gained by the exhibition of alkalis.

1st. THE acid which is already contained in the primæ viæ, will be destroyed; and

2dly. THE formation of fresh acid will be prevented.

THE destruction of the acid is an obvious effect of the alkali. The manner in which it operates so as to prevent the formation of acid, will be easily explained.

WHEN a production of acid takes place in the stomach, it is by a fermentation
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of the same nature as that, by which vinegar is formed. The influence of ferments in exciting such fermentations, every body is acquainted with. The substances which have entered into the acetous fermentation, will act as ferments upon the food that is swallowed, so that if it is once suffered to take place, it becomes a cause of its own continuance. An alkali, by uniting with and destroying the ferment, will put an end to the production of acid, when otherwise it would have gone on for a length of time, and the stomach will be strengthened, by a stop being put to an unnatural fermentation, which always tends greatly to add to the weakness that first gave occasion to it. In this manner, by the exhibition of a proper quantity of alkali, not only
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all the acid that is accidentally taken in by the mouth, as well as that which is generated in the body, will be got rid of, but future acidity will be prevented, and the powers of digestion increased.

So great is the efficacy of these substances, in affording relief in cases of Gravel and Stone, that they have gone by the name of solvents. The manner in which they operate, so as to prove a remedy in these complaints, has never been understood.

IN a urinary stone, the particles of calcareous earth are cemented together by mucus. Many were of opinion, that the alkali being carried to the concretion by the urine, united with and dissolved the
mucus,

mucus, leaving the earthy part to fall to pieces.

A MORE absurd idea never entered into the mind of man. When it is considered how very minute the proportion that is at any time given, is, to that of the circulating fluids, with which it mingles, it is impossible to conceive that it should be contained in the urine, in sufficient quantity to act in the manner that has been stated.

FROM being unable to account to their own minds for the operation of solvents, the greatest numbers of the faculty have denied the possibility of their having any effect; and from a conviction that they could be of no service, they have con-

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demned

demned them untried. Their incredulity prevented them from making an experiment of their effects, and the cases which were mentioned in which ease had been procured by the use of them, were either disregarded as fictitious, or the benefit was ascribed to some other circumstance.

SUCH is the footing upon which solvents stand: they are at present almost entirely neglected; and if this Treatise should call the attention of the public to a class of medicines, which are more powerful and certain in their effects, than almost any others, the Author will have the satisfaction to think, that he has contributed in a considerable degree to the
relief

relief of the afflicted, and to the general happiness of mankind.

WHEN it is known, that a calcareous habit arises in every instance from acidity, it will appear nothing strange, that alkalis should remove such a habit, and the diseases which proceed from it, viz. Gout and Gravel. But for acids, there would not be a particle of calcareous earth in the fluids : if some little of that earth is contained in the vessels of most people, it is because there are few, who are not in some degree exposed to their effects. By the use of alkalis, the body may be put, with respect to acids, in the same situation as if there were no such substances. When an influx of fresh calcareous earth is prevented, that which

is contained in the vessels, will soon be got rid of, the farther growth of a Stone will be put a stop to, and the cementing mucus will by degrees be dissolved by the urine ; so that the earthy part will crumble to pieces. Whoever is acquainted with the circumstance that produces a calcareous habit, must rather be surprised if alkalis should fail in affording relief, than wonder at the manner in which such relief is brought about. Their action being chemical, may always be relied upon : if the quantity exhibited is sufficient for the neutralization of all the acid in the stomach and intestines, the other effects must follow of course. They have been improperly termed solvents ; for their action is not upon the Stone itself : they only remove the habit, which gave occasion

occasion to its being formed, and leave it to be acted upon by the urine.

As a disposition to Gout depends entirely upon calcareous earth in the fluids, it is evident, that their influence in preventing that disease, will be no less considerable, than in the cure of the other. A paroxysm of Gout has rarely occurred in any person who was under a proper course of alkali for nephritic complaints. Doctor Cullen, and many other respectable authors, have told us, that the attacks were kept off by these medicines, when exhibited with some other view. They have slightly noticed the fact, without attempting in any manner to account for the reason.

HAVING

HAVING endeavoured to shew that the effects of these substances are not visionary, we shall next say something concerning the manner and form in which they are to be exhibited.

ALKALIS are three in number. The first is the fixed vegetable alkali, usually known by the names of pot-ash, salt of wormwood, and salt of tartar: the second is the fixed fossile alkali, which is commonly called barilla, and when purified, sal soda. The third species is the volatile alkali,

THESE three have equally the properties of combining with acids so as to form neutral salts, which are substances in every respect extremely different from either

ther an alkali or an acid; but the volatile is unfit for general use, from the great stimulating powers which it possesses. At any time when such a stimulus is wanted in the system, it may be employed with advantage. Between the other two there is no choice: they are nearly similar in taste, as well as in their effects.

THOSE people who were of opinion that alkalis acted as solvents upon a Stone by being conveyed to it in the urine, naturally concluded, that the quickness of the solution would be in proportion to the quantity that was given. This was an erroneous practice, from an error in principle. A sufficiency of alkali must be used to saturate all the acid in the sto-

mach and intestines ; more will be of no avail. If the regulations that have been laid down respecting drink and diet, are carefully attended to, there cannot be much acid in the *primæ viæ*, and therefore a small quantity of the alkali will suffice : a little, however, should always be used, that it may be a security against any acid that has been inadvertently swallowed, or by accident generated. The quantity must be in proportion to the degree of acidity, and at any time, when it is suspected that a great deal of acid is contained in the stomach, it will be proper to evacuate a part of it by an emetic, and afterwards to employ an alkali for the destruction of the remainder. After a vomit has been exhibited, thirty grains of fixed alkali may be taken three or four

times

times a day ; and when by the use of it, the disposition to the formation of acid has been corrected or diminished, the dose may be lessened to twenty, fifteen, or even ten grains : but whenever from flatulency, heart-burn, or other symptoms, there is reason to suspect, that the acetous fermentation still takes place, it will be necessary to avoid vegetable food as much as possible, and to employ a larger quantity of the alkali ; for it is to be remembered, that after a course of these medicines has been entered upon, every particle of acid must be destroyed. If the solution of a Stone is expected, the fluids must not be permitted to contain any calcareous earth, not even that quantity of it which is mixed with the blood of every person, who is not in the habit

habit of taking alkalis. If the effects of acids are completely counteracted, the calcareous habit, and the diseases which depend upon it, will be entirely removed; but if occasional acidity is suffered, a radical cure must not be expected.

GREAT care must be taken to avoid swallowing more acid than the alkali will destroy: if a man who is afflicted with Gout or Gravel, should be mad enough to drink a bottle of claret or of cyder, a dram or two of salt of wormwood would probably be insufficient for preventing their ill effects. At the same time, the production of acid in the primæ viæ, is strictly to be guarded against, not only by circumspection with respect to diet, but by the occasional use of
those

these medicines, which have been recommended for increasing the powers of digestion. The alkalis may be dissolved in the bitter infusions, and the proper time for administering them, will be a little before, or a little after each of the principal meals; that they may immediately come in contact with the acid, which is most liable to be taken in at the time of eating, or to be produced soon after.

SOME have been apprehensive, that a long perseverance in the use of alkalis would injure the constitution. It has been feared, that they might impoverish and thin the blood.

A WANT of precision in medical language, has often been complained of.

Terms

Terms, of which the signification is vague, have frequently been employed, and too often words are used to which no real meaning is affixed. Poorness of the juices, acrimony of the fluids, thickness and thinness of the blood, obstructions, viscidities, and a variety of other expressions of undetermined sense, are perpetually occurring in many authors.

THE effects of any substance upon the constitution, can only be learnt from experience. Let that be our guide in judging of alkalis. Many people have continued the use of these remedies for many months, and even years; but it has not appeared, that any disease whatever or the disposition to any disease, has been produced by them. On the contrary, they have always had the very best effects
upon

upon the system: for by destroying acidity and other noxious matter in the stomach, they gave strength to that organ, upon which the vigour of the other parts so much depends. The people who have long persevered in them, have not only been relieved from Gout and Gravel, the immediate effects of a calcareous habit, but from a multitude of other diseases, which attend upon indigestion and disorder in the primæ viæ. A moderate use of them is extremely conducive to health; and there is not upon record a single instance, in which they can be said to have done mischief. Alkalis are, at this moment, among the most fashionable remedies for scrophulous complaints; and in some cases they appear to have done service, without ever having done harm.

harm. Their action seems to be principally upon the stomach : by clearing it of offending matter, they increase its tone, and by so doing, they give strength to the system.

VULGAR prejudices are always removed with great difficulty, and are often maintained in opposition to facts. They take the deepest root in the minds of the ignorant and the obstinate, who are unwilling to alter their opinion, even when their understanding is convinced. If, notwithstanding what has been said, the aversion to alkalis by themselves cannot be conquered, they may be employed in a manner to which no objection can be urged. With oils and with mucilaginous substances they unite chemically,

cally, so as to form soap; but their attraction to these is not so strong as to acids. If an acid is applied to soap, it will immediately unite with the alkali, and separate the oil or mucilaginous matter.

SOAP is a compound, of which the properties are in every respect, different from those of an alkali. When taken into the stomach, it is of itself inactive and inoffensive: it cannot produce upon the fluids the mischiefs that were apprehended from alkali, for unless it meets with an acid, it will pass through the body unaltered. It has frequently been employed as a solvent; and those, who foolishly conceived that its action was upon the Stone itself, gave a larger quantity than was necessary.

Its

Its effects, like those of an alkali, are entirely upon the acid with which it meets in the stomach or intestines; and it need only be used in such proportion as shall contain alkali sufficient for the saturation of the whole. An ounce during the day, to be taken in three or four doses, will generally be enough.

SUCH as are apprehensive of mischief from alkalis, may take soap without proof of any ill consequences. If it is not encountered by an acid, it will produce no effect. There is but one objection to it, that sometimes either from its impurity, or from its slimyness, it is uneasy to the stomach. But this effect may be in a great measure prevented, by taking care to have it made with pure oil of almonds,

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or of olives. The common soaps, which are made with rancid whale oil, are very unfit for being taken internally: those from Spain are to be preferred.

PERHAPS the best method of exhibiting soap is, for the patient himself to form it at the time when it is used. This is readily done, by mixing the caustic alkali with any thing mucilaginous, such as veal broth. Hitherto we have been speaking of alkalis in their mild form, or in combination with gas. When the gas is separated, they readily dissolve all animal and vegetable substances, uniting with them so as to form soaps. In this state they have frequently been employed, but by many they have been considered as too acrid for internal exhibition; and so they certainly would be, if given in wa-

ter only ; but when they are mixed with broth, they immediately unite with the mucilaginous matter, forming soaps, perfectly innocent and inactive. To render the union more compleat, they may be boiled together for a few minutes in a clean silver saucepan. Veal or mutton broth, or any other mucilaginous liquid, with the addition of thirty or forty drops, or more if necessary, of soap lees, is to be considered as a solution of soap, perfectly mild, and more pure than any that can be otherwise procured.

COMMON salt produces a separation between soap and water, and therefore the broth should be used without it. If we were under the necessity of taking such medicines, this last is the method
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which we should be inclined to prefer as being the most agreeable.

HEPAR Sulphuris, perhaps, would be a medicine of efficacy in Gout and Gravel. The alkali will separate from the sulphur to unite with an acid; so that it would have the property of correcting acidity in the same manner as soaps: but we cannot take upon us to recommend it, from an ignorance of its other effects upon the system.

ACIDITY in the primæ viæ may be corrected by exhibiting a neutral salt, formed with an acid, to which the alkali has not so strong an attraction as to acetous acid. Soluble tartar is one of this kind. The alkali will quit the tartar to unite with

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vinegar:

vinegar : and the acid of the stomach, being of the same nature as vinegar, may be got rid of in this manner. The destruction of the ferment is of so much importance in preventing future acidity, that great benefit has been derived from this salt. The use of it, however, is attended with one inconvenience : when the alkali has united with the acid of the stomach, the tartar, which is itself an acid, will be precipitated. On this account it is not of so much efficacy as alkalis or soaps.

ACIDITY in the stomach may be destroyed by magnesia ; but the compounds of this substance with acids, are salts, soluble in water, and decomposable by volatile alkali ; therefore, by a long perseverance

severance in the use of it, the blood might become impregnated with it. It has not been ascertained, what effect a quantity of this earth in the fluids, would produce; however, it is not improbable, that the particles might unite in the kidneys and bladder, so as to form concretions of magnesia. While there is a doubt respecting this matter, it is not to be recommended for general use. A dose of it may be taken occasionally as a laxative, with great safety.

WE shall only take notice of one other remedy, which has been employed for the correction of acidity, viz. calcareous earth.

THE effect that this substance was found to produce in cases of Gravel, should have opened the eyes of the faculty, with respect to the manner in which the medicines, usually termed solvents, operated. It was most ridiculous to suppose, that calcareous earth would dissolve a calcareous concretion in the urinary passages: on the contrary, it was evident, that if it came to be contained in the urine, an increase of the Stone must inevitably happen. This circumstance, however, does not appear to have made any impression on practitioners: they always considered the solvent as acting upon the calculus itself.

A SOLUTION of a Stone, and a removal of the calcareous habit, have certainly in
many

many instances, been the consequence of calcareous earth exhibited by the mouth. It may be thought wonderful, that calcareous earth, by being taken into the stomach, should be the means of preventing calcareous earth from accumulating in the fluids; but the seeming paradox will be easily explained.

WE have already remarked, that this substance does not appear capable of being absorbed by itself. Acids are the vehicles by which it is conveyed into the circulation. We have also observed, that, when the acetous fermentation has taken place in the stomach, the destruction of the acid already formed, is of great importance in preventing future acidity. If, notwithstanding the use of

calcareous earth, the acetous fermentation continues to take place in the stomach, or if acids are carelessly taken in by the mouth, undoubtedly much mischief will arise, and the complaints that proceed from a calcareous habit, will be aggravated : but if by destroying the ferment, it has the effect of preventing future acidity, and in that manner of giving strength to the powers of digestion, and if at the same time proper care is taken to avoid the use of acids, the happiest consequences may arise from it; for, if there is no acid in the intestines, with which it can combine, it will not be absorbed, the earth in the vessels must soon be got rid of, and the urine will act upon the Stone in the same manner as if an alkali had been used. In this way, its

operation is easily accounted for, and the opinion which we have delivered concerning the mode in which solvents produce their effects, is fully confirmed. Lime-water and common chalk, have afforded relief both in Gout and Gravel. But alkalis or soaps are much more certain in their effects. The use of calcareous earth is always attended with a risk. If it is not successful in curing the disposition to acidity, it will unite with the acid that is generated, and passing with it into the circulation, an increase of the evil must ensue. When a sure remedy can be obtained, it would be folly to employ a precarious one.

THESE are the methods by which the destruction of acidity in the primæ viæ

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is to be effected. We are next to take notice of the third and last general division of means by which a calcarious habit is to be removed or prevented, viz.

THE refraining from waters, in which are contained any of the compounds of calcarious earth and acids.

THERE are few waters in which there is not a little selenites, and this is one reason why a minute proportion of calcarious earth is found in the fluids of most people, who are not under a course of alkalis. The very hard waters are sometimes nearly saturated with selenitic salts. Such are carefully to be avoided, and when no others can be procured, the ill effects to be apprehended from them must

must be obviated, by the addition of a little alkali, which will cause the earth to be precipitated in the form of a white powder. If suffered to stand, the earth will subside to the bottom, but this is not of such consequence ; for, by being separated from the acid, it is rendered inoffensive. The softest waters are in general the best. Rain and river water are preferable to spring water. When water impregnated with selenites is employed to dress victuals, some alkali should be punctually taken at meal times.

SUCH are the methods by which Gout and Gravel may be radically cured, or entirely prevented. If these rules are followed with attention and perseverance, there cannot be a doubt of their success.

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That acids are the primitive sources of both diseases, is evident from every circumstance that attends their production; if the effects of acids are obviated, the diseases must of necessity cease.

It may be asked, what length of time will be necessary for removing the Gouty disposition, or for the solution of a Stone?

To this question it is difficult to give a precise answer. If the remedies, which have been recommended, are persisted in with regularity, the calcareous earth in the fluids will soon disappear; but it is to be remarked, that when a disposition to a disease has once been communicated, it will sometimes continue after the cause which gave rise to it is removed. How

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far this is the case with the disposition to Gout, experience only can ascertain; but from cases which have occurred, we have reason to think, that it will soon grow weaker, and that by diligent perseverance for a year or two, it will be entirely got the better of.

WITH respect to the time requisite for the solution of a Stone, there is still greater uncertainty. These concretions are of different degrees of firmness; many being of a very loose texture, while others approach near to the hardness of crystal. When the state of the fluids is altered, the first sort will soon be got rid of; but the urine will act with great difficulty on the others: and a very long time will be requisite for their solution. But though
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the concretion may remain undissolved, relief will generally be procured, as soon as the deposition of fresh earth is prevented ; for the surface will be rendered softer, and the mucus of the urine will adhere to it, so that it will be less liable to irritate the parts with which it comes in contact.

OF the regulations that have been prescribed, the observance of a part only will not be sufficient. The abstaining from acid liquors will little avail, if the formation of acid is permitted to take place in the stomach. The exhibition of alkaline substances can be of no use, if a greater quantity of acid is swallowed or generated, than they are equal to the destruction of. It is by attention to every
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particular circumstance that success will be ensured. The drink and diet must be regulated, the stomach must be strengthened by the occasional use of bitter medicines, and that not a particle of acid may escape, a proportion of alkali or soap, equal to the necessity, must constantly be employed.

By these means it is certain, that a cure may in every instance be effected; but we are not sanguine in expecting that many cures will take place. Although a greater latitude, in respect to regimen, is allowed, than was ever permitted in Gout, and no part of the system can be attended with inconvenience, yet there are very few who will have resolution to persevere in it with an exactness that shall entitle them

to success. The remedies are as certain as mercury in the venereal disease, or as bark in an intermittent ; but, like these, if improperly employed, they will fail in their effects.

THE medicines must be persevered in for some time after the diseases have been got the better of ; for by an incontinent use of acids, the habit will return, and a constitutional weakness in the powers of digestion will for ever give a tendency to the formation of acid. For these reasons it may sometimes be necessary to employ them occasionally during life. But when the symptoms of Gravel have disappeared, and the disposition to Gout is entirely overcome, abstinence from acids, with proper attention to diet, and the circumstances

stances, which increase the tone of the stomach, will render alkaline substances less necessary.

It may be remarked, that of the remedies which have been mentioned, several have been recommended by others at different times. But they were used without any regular method, and as specifics, of which the mode of action was not known. The persons that prescribed them, had no right conception of the manner in which they were to operate ; but were directed to them by accident, which had in some cases pointed out what would be of service ; and no care was taken to guard against the circumstances by which their effects were counteracted.

It is fortunate that the articles of greatest efficacy, are procurable at an expence so very trifling, that none need be precluded from the use of them. The common pot-ash, with an infusion of camomile, tanfy, or gentian, may be taken with as much advantage as the most costly preparations in the apothecary's shop.

IN cases of Gravel it has been customary to employ medicines for increasing the secretion of urine. These cannot be of much service, while the state of the fluids remains unaltered: but when the calcareous habit has been removed, the solution of a Stone may be forwarded by diuretics. They cause a greater quantity of urine to be applied to it, and at
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the same time they bring it nearer to the state of pure water. It was formerly observed, that honey was principally of use, by being taken instead of butter, which is always of detriment when the powers of digestion are impaired: perhaps it may likewise be of some service, from its disposition to increase the secretion by the kidneys. Alkalis are gentle diuretics, and when they are employed, any others are unnecessary. The more powerful ones, such as squills and turpentine, might do mischief, by adding to the disorder in the stomach.

By pursuing the plan which has been recommended, not only the diseases against which it is peculiarly levelled, will

will be prevented, but a multitude of others, which proceed from disorder in the primæ viæ, will be mitigated or cured. Strength of body and sound health will succeed to infirmity and pain.

AGAINST acidity, all the remedies have been either immediately or ultimately pointed. We shall conclude this Treatise, with advising such of our readers as are apprehensive of GOUT or GRAVEL, to beware of ACIDS.

F I N I S.